Wisdom From the Periphery: Talk, Thought and Politics in the Ethnographic Theater of John Millington Synge

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> In Ireland, for a few years more, we have a popular imagination that is fiery and magnificent, and tender; so that those of us who wish to write start with a chance that is not given to writers in places where the springtime of the local life has been forgotten, and the harvest is a memory only, and the straw has been turned into bricks.
>
> John Millington Synge, 1907
> *Preface to The Playboy of the Western World*

It is the legacy of Mikail Bakhtin (1934-35, 1940) to have shown us that systems of articulation and thought are always on their way somewhere. They are irremediably in progress by virtue of how they are constructed and maintained by people working, variously and inventively, with the constraints that organize their lives together. Communities are made of voices and voices of words, and every word helps to structure a recognizable community to the extent that it can be wrestled to a common ground, to an ideological core, where the word can be said to have specific and even uniform meanings and consequences. These are rough waters on which to build a coherent system of thought; it is not that people do not manage coherence, rather that they do so only with violence to all the other things that might have been said by their every word.

A primary social tension exists between periphery and core uses of our conversations with each other; all words are pulled by speakers, listeners and the powers that be to an institutionally enhancing use, while at the same time each word represents a scream for alternative formulations of the world.[1] It is this tension that guided Bakhtin's interest in the multiple languages at the periphery of society, in the languages of the folk poets, clowns and carnival masters. People who live on the periphery run the greatest risk of having their words taken from them. They are institutionally coherent to the extent that their words are appropriated to the ideological core, and they are similarly unintelligible, and deemed unintelligent, to the extent that their words resist a further contribution to core values.

This brief report examines the play of a core-periphery tension in the search for an adequate language of expression in early twentieth century Ireland, particularly in the six ethnographic dramas of J. M. Synge. In the course of articulating and negotiating the core-periphery tensions of his time, Synge confronted first hand the most basic problems facing a comparative study of human cognition. Over the decade that Synge "collaborated" with the people of Ireland in the development of his plays, his mastery of their talk, his sense of their contexts, and his appreciation of their intelligence was greatly enhanced. This experience should be familiar to readers of this journal, who stand for the possibility that if people on any periphery[2] do not make sense, it is likely they are being judged by mainstream yardsticks; with a little more time in their world and better eliciting tools, their peripheral wisdom can be

understood and displayed in core terms (Hanunoo love poets, Pulawat navigators and Harlem street gang adolescents, for example, can be shown to be smart).

But Synge's story has a deeper moral. The separation between core and periphery is marked by more than neutral linguistic or cultural differences. Core and periphery are separated by a systematic differentiation of persons and activities along a continuum of access to resources and power. Synge did more than learn to describe and explain the different kinds of people on the periphery. Rather he learned to contextualize their wisdom well enough to reproduce it on stage. He did not speak for the people as much as he allowed them to speak through him, and then simply for his pleasure. And speak they did, and far louder than he ever anticipated. His plays were met with outrage from official Irish consciousness. All kinds of Dubliners, with the most nationalist leading the pack, literally rioted for a week in response to his carnivalization of core values in peasant garb. In the long run, his characters carried their own voices, and Synge's dialect theater became, in Yeats' words (1935), part of " the stir of thought which prepared for the Anglo-Irish war." Within a decade of Synge's death (in 1909, at age 38), their voices had moved for the moment from the periphery to the core. The work Synge had done to contextualize their words helped to give them a new forum for the verbal revolutions they had been attempting for decades before.

The status of the Irish peasantry as peripheral is uncontested. Long an outpost for European civilization and a refuge region for European markets, the Irish of the turn of the century were living in the face of a massive depopulation by starvation and migration, 300 unpleasant years of British rule, the immanent extinction of their Gaelic language and a fading access to the educational treasures of their own culture. A first level of tension exists between the emerging Irish state (periphery) and the British empire (core), and a second level between the Catholic peasants of Ireland (periphery) and the Anglo-Irish, Protestant population that controlled both cultural and economic reproduction within Ireland (core). Both tensions are played out in the languages available for the different communities within Ireland to express themselves, namely, the fast disappearing Gaelic of the peasants, an Hiberno English dialect used by the bulk of the people at the very

least in the local marketplace, and a proper British English useful for official and educational conversations and participation in the international marketplace.[3]

Within this configuration, Synge was something of an urban gentry, but nonetheless Irish and nonetheless in search of a language and intellectual tradition. He went to the peasants for their wisdom, to the blind beggars of the countryside, the fishing folk of the islands, and the tinkers of the roads and ditches, "where the imagination of the people, and the language they use, is rich and living." It was among them that he found his own tongue. Lady Gregory and William Butler Yeats joined the search for Celtic riches. Other luminaries of the literary renaissance took different directions: George Russel (AE) and (again) Yeats sought another kind of wisdom in spiritualist traditions; Sean O'Casey mined world politics for the stuff of his Irish based writings; and James Joyce went still another way, pushing language in the direction of music. What made all these voices the same was the search for a way to talk through the tensions between speaking as the world could hear, that is to say, in the British English language of the cultural and economic marketplace, and speaking in a language fitted to the experience of the people, in the language of resentment that comes from poverty, oppression and degradation.[4]

Synge lived these tensions to their fullest. A member of the Protestant ascendancy, he was educated in the finest English traditions available in late nineteenth century Dublin. At the same time, his Gaelic was excellent, and he walked the roads with the most peripheral Gaels ever to be locked out of European civilization. Always in the middle, he rested with neither extreme and gave the bulk of his creative efforts to fashioning an Hiberno English into an artistic medium. He was proud to note that in his plays he "used one or two words only that I have not heard among the country people of Ireland, or spoken in my own nursery before I could read the newspapers."

Peripheral to British powers, but core to the even more peripheral peasantry, Synge was in the position of many ethnographers. From his travels in the tradition bound Aran Islands from 1898 to 1902, he confronts the so-called problem of primitive mentality:[5]

In some ways these men and women seem strangely far away from me. They have the same emotions that I have, and the animals have, yet I cannot talk to them when there is much to say, more then to the dog that whines beside me in a mountain fog.

There is hardly an hour I am with them that I do not feel the shock of some inconceivable idea, and then again the shock of some vague emotion that is familiar to them and to me. On some days I feel this island as a perfect home and resting place; on other days I feel that I am a waif among the people. I can feel more with them than they can feel with me, and while I wander among them, they like me sometimes, and laugh at me sometimes, yet never know what I am doing. (1907, p. 83)

The natives seem to think just the way we do, but they do not seem to know very much. They do not seem to have inquiring minds. Synge can know their world, but they have no frame of reference for understanding his world.

If the heads of the Aran Islanders appear to be half-empty, the anthropological instinct is to locate the wisdom that fills up the other half of their glass of intelligence. Even if the natives do not make sense in core terms, their wisdom might be found in their understanding of local fishing or farming, or in the complexities of their kin reckoning. Synge worked on the possibility that the traditional people had access to a sensibility of another kind, that they lacked in a wide range of knowledge was made up for in a depth of vision into their own "race worn with sorrow." In a paragraph following the ones cited above, Synge reformulated his question about their mental life into an appreciation:

In the evenings I sometimes meet with a girl who is not half way through her teens . . . As we sit on stools on either side of the fire I hear her voice going backwards and forwards in the same sentence from the gaiety of a child to the plaintive intonation of an old race that is worn with sorrow. At one moment she is a simple peasant, at another she seems to be looking out at the world with a sense of prehistoric disillusion and to sum up in the expression of her grey-blue eyes the whole external despondency of the clouds and sea. (p. 83)

Synge shared the ethnographer's sense of the people of Aran as half full rather than half empty.

Beyond anthropology, there is Bakhtin's instinct. People locked away from core culture may have something quite powerful to say about that very core, even if their critique is not easily intelligible in core terms. After Synge's magnificent *Playboy of the Western World* caused an uproar in Dublin, Bakhtin's point seems well secured. Synge was ready for the peasants to be smart, but he had no idea that his reconstruction of their wisdom would speak so loudly and so systematically to the core.

It was in the Aran Islands that Synge first heard the story that grew into his *Playboy*, the story of young Christy Mahon, who thinking he had killed his own, and most oppressive father, escapes to a distant village where they treat him as a hero, at least until his not so mortally wounded father shows up looking for him, and he is then degraded by all. In the rise and fall of such a playboy, one who would even murder his own Da, Synge found a vehicle for articulating the main constraints of the lives of the country people: poverty, paternal oppression, women in need of a road out, they all take a turn announcing their sway. Fifty years of ethnography, from Arensberg (1937) to Wilson (1984), is still filling in a structural description of the constraints Synge identified. Synge had Christy Mahon speak in an Hiberno English, and he used it to say all that any man in his situation could ever say, and he said it so well. By Synge's hand, Christy Mahon became one of the great orators of our time, and Hiberno English became an artistic medium that spoke directly to the political tensions between Irish and English people and their respective languages. In making the transition from ethnographer to playwright, in retelling their stories in ways consonant with what they understood in their telling them, Synge opened the stage for the voices of the people to emerge in new clothing.

For the century before the opening of the Abbey Theater in Dublin, the Irishman complete with his Hiberno English played the fool, the ruffian, and the drunk on the British stage (Waters, 1984). The Abbey, headed by Yeats and Lady Gregory, was charged with building a national theater that could go beyond the stereotypes. The Irish were to be presented on the Abbey stage as respectable members of the core culture, no longer to be laughed at, but appreciated in core terms. Synge's *Playboy* challenged this mission. Christy Mahon was no fool, and his Hiberno English was as good a vehicle for cleverness as had ever been heard. But he was no respectable member of core culture either[6] Not only had he killed his father, good fodder for the farce Synge was trying to put

on, he also brought with him the reality of the countryside and its honesty vis-a-vis the efforts of the Dublin aristocracy to claim freedom for the Irish in the name of their respectability, rather than in the name of the suffering peasants. While Dublin rioted in response to the continued presentation of the *Playboy* at the Abbey, the newspapers were filled with scathing reviews and occasional defenders of Synge's efforts. One review had it that:

> . . . the Stage Irishman is a gentleman in comparison with the vile wretch whom Mr. Synge presented to an astonished Irish audience as the most popular type of Western peasant. The chief faults of the stage Irishman are excessive flamboyance and curious eccentricities of costume and brogue. But the Abbey street stage Irishman . . . is a foul-mouthed scoundrel and parracide. (Kilroy, 1971, p. 19)

The voices of the periphery were not welcome among nationalists who lived, however unconsciously, under the sway of British views of the world. If the question was, "Who can speak for Ireland?," a more important question was, "To whom?" (Kiberd, 1984). To the aristocracy that rioted at Synge's *Playboy*, all speaking had to be addressed to and understood in terms of the British core. For Synge's peasants, the voices necessary for speaking to either the British or the cultured elite of Dublin were systematically unavailable. Synge made those voices available and only a few Dubliners were able to hear; others could only respond to the tensions in the system articulated by the pains and sorrows of life in the countryside, and they screamed back.

Yeats made the claim that Synge was in the long run hailed as a great spokesman for the Irish periphery precisely because he was "the only man I have ever known incapable of a political thought or of a humanitarian purpose. He could walk the roadside all day with some poor man without any desire to do him good or for any reason except that he liked them" (1935). Bakhtin's point, of course, is that exchanging voices with people is an intensely political act. When Synge went for the voices of the people and tried to recapture, in a way larger than life, as any stage requires, the contexts that organized those voices and how they were to be appropriated by the core or banished to the periphery, he came up with revolutionary materials. The periphery can speak that clearly and that forcefully to the core if the proper forum

and medium are made availabe. For the peasants on the Irish periphery at the turn of this century, John Synge and the Abbey Theater group were the medium and the forum.

The revolutionary impact of Synge's theater should leave us with both a celebration and an uneasiness. The celebration is for all those left inarticulate by their place within the system. Any non-appreciation of the wisdom of people on the periphery is rarely an accident; they are speaking and thinking often in antithesis to what we might expect, in antithesis to what we might insist on by the canons of good, common sense, but they can make sense. The uneasiness is for those of us who think of ourselves as listeners. If listened to carefully enough, the babble from the periphery may tower over our more ordinary lives with a devastating critique of its constraints and contradictions. As students of comparative human cognition, we are now prepared to find the disenfranchised being smart in ways that are difficult for us to recognize. If Bakhtin is right, we should be prepared to find them smart in ways we cannot handle. In articulating the roads not available in their lives, people from the periphery might identify roads we might be afraid to walk. Any ethnography of people cut from the mainstream that does not terrify or infuriate its readers is likely not to have pushed far enough.

Notes

[1]Bakhtin's radically dialectical theory of word meanings should not be confused with the naive stand that any word can mean anything (as can be had, for example, from an unsympathetic reading of Malinowski). Bakhtin was fully aware that words came prepackaged, that a rose is a rose is a rose; he was also aware that the packaging was arbitrary except within a system of values enforced by a community of voices. It is precisely because a word's meaning is maintained on the strength of a collusion on the parts of many speaker's that every utterance suggests its opposite, and screams for lighter alternatives (McDermott and Tylbor, 1983). Early in life, Synge held the naive stand and made up his own words for many objects in the world. His mother convinced him it was a sin, and he had to give it up (Kiberd, 1979). Later in life, as we shall see, he was closer to Bakhtin's position, choosing his words carefully to fit the communal contexts in which he heard them, and moving them to new contexts in which they exploded. He had committed another sin, this one leaving much of literate Dublin screaming at each other.

[2]By periphery I mean particularly people disenfranchised by geographic or economic isolation. Bakhtin's account cuts deeper and identifies some of us core

culture persons as fairly permanently peripheral (Bateson's schizophrenics) and all of us constantly, on an every other moment basis, peripheral to the very worlds we are helping recreate. For an important account of kinds of peripheries and social economies available in western Ireland over the last century, see the work of Taylor (1980).

[3]There is an abundance of intelligent accounts of the literature and politics of the times. See, for example, Brown (1972), Kenner (1984) and Lyons (1977).

[4]In 1928, James Joyce asked H. G. Wells to support his efforts to produce a new kind of novel (*Finnegan's Wake*). Wells turned him down and his answer sums up with shocking clarity some of the tensions between British and Irish versions of both language and situated conversations:

> Your training has been Catholic, Irish and insurrectionary; mine, such as it was, was scientific, constructive and, I suppose, English. The frame of my mind is a world wherein a big unifying and concentrating process is possible (increase of power and range by economy and concentration of effort), a progress not inevitable but interesting and possible. That game attracted and holds me. For it, I want a language and statement as simple and clear as possible. You begin Catholic, that is to say, you began with a system of values in stark opposition to reality. Your mental existence is obsessed by a monstrous system of contradictions. You really believe in chastity, purity and the personal God and that is why you are always breaking out into cries of cunt, shit, and hell ... And while you were brought up under the delusion of political suppression I was brought up under the delusion of political responsibility. It seems a fine thing for you to defy and break up. To me, not in the least.

Almost to the year, Bakhtin was stating, under another person's name, a more formal version of such tensions between the many voices that make up a community (Volosinov, 1929). A supporting voice of my own, one belonging to William Peter Murphy, was good enough to send the Wells letter to me.

[5]Compare the notes of another nascent anthropologist only 20 years before. Franz Boas wrote of the Eskimo: "I had seen that they enjoyed life, and hard life, as we do: that nature is beautiful to them; that feelings of friendship also root in the Eskimo heart; that, although the character of their life is rude as compared to civilized life, the Eskimo is a man as we are; that his feelings, his virtues and his shortcomings are based on human nature, like ours" (cited in Kardiner and Preble, 1961, p. 119). Diamond (1974) has been good enough to show that the problem of primitive mentality is less something to be discovered in the world and more a statement of our relations to various kinds of disenfranchised people.

[6]Bakhtin's account of the peasants in Rabelais shared many of the traits of Synge's new heroes. Holquist (1984, p. xix) has noted that Bakhtin "employs his most glowing colors to highlight attributes of the folk precisely and diametrically opposed to those celebrated in Soviet *folklorico*. His folk are blasphemous rather than adoring, cunning rather than intelligent; they are coarse, dirty and rampantly physical, reveling in oceans of strong drink, poods of sausage, and endless coupling of bodies . . . Bakhtin's claim that the folk not only picked their noses and farted, but enjoyed doing so, seemed particularly unregenerate. The opposition is not merely between two different concepts of common man, but between two fundamentally opposed world views with nothing in common except that each finds its most comprehensive metaphor in 'the folk.'"

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Narration and Dramatization as a Basis for Remediation of Language Disorders

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Through our research, we have been testing the efficacy of storytelling and dramatization activities in the remediation of oral and written language disorders in learning disabled (LD) children six to eleven years of age. There are three shortcomings in the current clinical approach to remediation of oral and written language disorders that this study addressed: 1) Instead of breaking down the reading and writing processes into their component subskills and working on individual subskills in isolation, this project attempted to remediate the basic skills necessary for reading and writing along with teaching comprehension and conceptual skills needed to understand and express ideas in writing; 2) The project introduced LD children to literacy activities that are satisfying, meaningful, and intrinsically motivating to children not experiencing success in learning to read and write in school; 3) The project provided literacy activities that simultaneously support the development of social and interpersonal skills among learning disabled children as well as support their cognitive development.

Two groups of LD children (a summer school group and children in autumn after-school remediation classes) participated in storytelling and dramatization activities. The activities consisted of children individually composing narratives aloud with a clinician/teacher who wrote down their words; later the clinician/teacher read each story for a group to dramatize at a formal group time. These activities were complemented with the reading of adult-authored stories and fairy tales which likewise were dramatized by the group.

The hypothesis guiding this work on literacy development is that literacy has social origins. By social we mean that the foundations of literacy are built on 1) oral language: conversations with peers, siblings, parents, and teachers; 2) play, that is, on those occasions when a child says "let's pretend . . . " with those around him or her; when a child's imagination is alive and at work in the service of working on problems of concern for him or her; and 3) in reading, writing and discussing stories -- both adult-authored and child-authored. The Soviet psychologist, L. S. Vygotsky (1978) has provided the theoretical framework for our hypotheses of social origins of literacy, and Vivian Paley, classroom teacher and author of *Wally's stories* (1981), gave us a picture of what social origins of literacy look like in a classroom context.

When looking closely at storytelling and dramatization activities at work in the classroom setting, the social origins of literacy become apparent in two ways. First, they can be seen in the dialogue between the child who wishes to compose a story and the teacher who helps him or her put it on paper. The process begins with the child's desire to have contact with the teacher concerning something about which he or she is thinking. The teacher, in her role as scribe and friendly editor, proceeds to organize the conversation so that the child, in responding to questions, develops a fuller narrative than he or she might have if no helping or prompting was received. This gives the teacher the chance to discover the concerns of individual children as well as a built in opportunity to guide the logic of the children's thinking through questions which help them express and clarify their ideas with more precise wording and grammar. The children, in turn, find out what written language is about as their own ideas are transposed into written form which remains fixed on the paper to be read at any time thereafter.

The social origins of literacy become even more evident when the dramatization of stories is introduced. Gradually children learn to make use of their stories to inform one another of social preferences and private fantasies through dramatization of them. The children's motives for telling stories seem to derive from their desire to communicate with one another about the world they share. Through stories, children try to make sense of their experiences at home and at school; they express fears, wishes, and even propose solutions to problems. Storytellers ask peers to be their friends by giving them a special role in the acting of their stories. Stories, when shared through dramatization, form part of the fabric of the children's relationships with one another through which they work out many of the experiences described above. The teacher, at the same time, participates with the children in building a small scale culture where story ideas are shared, redefined, created anew, and connected to ongoing experiences by use of the written word.

An important aspect of these storytelling and dramatization activities is that they make possible what Robert Gundlach calls the formation of a "community of writers and readers" among a group of children. Gundlach (1982) has recently stressed the importance of the resources that children need in order to develop into writers and readers. He points out that:

> . . . one key factor in learning to write and in developing as a writer is participating, either through reading or by direct human contact, in a community of active readers and writers. By participating in such a community, you stand a reasonably good chance of acquiring notions of style and genre, of developing a general sense of the literacy enterprise, and of increasing your sophistication about the act of writing itself . . . I believe, then, that we ought to be asking how teachers can assemble true communities of active readers and writers, and how teachers can organize things so that even the most reluctant student has a clear shot at becoming a participating member.

As Gundlach reports of professional writers, children become more sophisticated as writers *because* they are in touch with other writers who form a literary community. Readers and writers need not only the one-on-one contact with a mentor and editor, but also the vast enrichment and expansion of ideas and concepts that comes with

conversations and dialogues with peers. The storytelling and dramatization activities are important to children because they represent one way that a community of writers and readers can be created. The children are exposed to the best children's literature through stories written by adults which are read and dramatized, and they have opportunities to express their own ideas, fantasies, and observations by creating written stories and sharing them through group reading and dramatization.

This discovery of how to make reading and writing activities so compelling for children goes to Vivian Paley. In *Wally's stories* (1981) she describes how story dictation had always been an activity she made available to her classes, but only a handful of children (usually girls) occasionally enjoyed telling stories over the course of the year. One day, however, after more than 20 years of teaching, she discovered a prolific connection: the relationship of storytelling to story dramatization for the young child.

> The first time I asked Wally if he wanted to write a story he looked surprised. "You didn't teach me how to write yet," he said.
>
> "You just tell me the story, Wally. I'll write the words."
>
> "What should I tell about?"
>
> "You like dinosaurs. You could tell about dinosaurs."
>
> He dictated this story.
>
> The dinosaur smashed down the city and the people got mad and put him in jail.
>
> "Is that the end?" I asked. "Did he get out?"
>
> He promised he would be good so they let him go home and his mother was waiting.
>
> We acted out the story immediately for one reason -- I felt sorry for Wally. He had been on the time-out chair twice that day, and his sadness stayed with me. I wanted to do something nice for him, and I was sure it would please him if we acted out his story.
>
> It made Wally very happy, and a flurry of story writing began that continued and grew all year. The boys dictated as many stories as the girls, and we acted out each story the day it was written if we could.
>
> Before, we had never acted out these stories. We had dramatized every other kind of printed word -- fairy tales, story books, poems, songs -- but it had always seemed enough just to write the children's words. Obviously it was not; the words

did not sufficiently represent the action, which needed to be shared. For this alone, the children would give up play time, as it was a true extension of play. (pp. 11-12)

Paley had discovered a set of activities where instruction can join hands with the forces of children's play; where adult and child, teacher and class are aligned in joint purpose -- using written words to communicate with one another. This discovery suggests one solution to an ongoing conflict among educators and psychologists. On the one hand, there are those who believe in the value of children's play and in respecting the child's rhythms and the unfolding of stages of development. Within this school of thought, adults take a more passive, non-intrusive role in the child's learning, allowing the child an active role in determining the nature of day-to-day development of thinking. At the other extreme are those who endorse an active and directive role for the adult in the developmental processes of young children, and who favor a more passive and receptive role for the child. Particularly in the area of learning to read and write, there is widespread belief that literacy skills are mastered primarily through didactic instruction such as having children copy and recite the letters of the alphabet. Educational efforts in this tradition appear to assume that literacy equals the sum of the individual mechanical skills that go into putting words on paper. It is often argued, however, that the skills approach ignores the most vital aspect of literacy -- that writing and reading are a means of communicating: a meaning-making and meaning-sharing activity among people.

Both approaches have proved dissatisfying because they presuppose an all-or-nothing role for one of the participants in the teaching-learning situation; and yet both points of view are right in a limited sense: There is a need for adult instruction in the process and there is a need for children to have opportunities to play with the forms and functions of written language, just as they have had such opportunities in learning to speak. But what would play with written language look like for young children? This is where the significance of Paley's approach lies -- the stories become the children's scripts for the kinds of play situations they might enact in other areas of the room. However, it quickly becomes evident to the children that, at times, play in the form of written

stories can be a much more powerful and satisfying communication tool.

Still one may ask, how is the child mastering skills of reading and writing if the teacher is doing the actual writing and reading? Maybe young children are practicing logic and clear expression, but how are they becoming more proficient in writing and reading from dictating and dramatizing stories? Until recently, educators and psychologists have accounted for children's development as a function of either environmental input (i.e., adult instruction and guidance), or have attributed development to children's maturation or self-initiated activities and discoveries. The work of Vygotsky, however, offers a theory that accounts for development as a function of the interaction between adults and children working together in activities, a theory that unites a child's play *with* adult instruction.

Vygotsky stresses the importance of significant others in the child's environment in determining the reorganization of the child's thinking from one stage of development to the next. Using Vygotsky's theory, Jerome Bruner (1978) argued that language development does not begin when the child utters his first word between the ages of one and two, but that the foundations of oral language are laid down in human interactions that begin at birth. He pointed out that oral language does not emerge only because of maturation nor does it emerge because the infant receives training in sounds, syllables and words in any direct or formal way. Bruner demonstrates that mothers and infants play hundreds of games such as peek-a-boo during the first twelve months of life which give the infant an excellent foundation in dialogue. That is, without actually communicating with words the infant has learned many things about making his needs and intentions known to another. The foundations for oral communication have been laid in a set of activities that do not immediately resemble actual talking.

In our work, we are exploring the hypothesis that learning to read and write is governed by similar developmental principles. Adults and children can participate in meaningful activities that involves the written word but do not require the child to have mastered writing or reading. It is our contention that the activities of story dictation and story dramatization provide the child

with practice in the fundamental purpose as well as the mechanics of reading and writing. In addition, these activities strongly motivate the child to master the mechanics of written language and to become increasingly more effective in self expression and in understanding the written messages of others.

The assumption that underlies this study, then, is that interactions between teachers and children focused on story dictation and dramatization provide a basis for early literacy development and for the remediation of written language disorders. Our research shows that the activities of story dictation and dramatization can fulfill both the adult's need to provide the learning disabled child with a firm foundation in language (oral and written vocabulary, letters, sounds) and literature (stories, fables, fairy tales), while fulfilling the child's need to develop the means to express him or herself more effectively.

Methodology

Subjects

Storytelling and dramatization activities were implemented with two groups of LD children participating in the remediation program at the Saint Xavier College Learning Disabilities Clinic. The first group of 16 children attended a six-week, four days per week summer program. The second group of 9 children participated in a ten-week after school program, once a week from October through December. The children were all diagnosed as LD by their school districts or by the Saint Xavier College Clinic; they formed a heterogeneous group in terms of disability areas and styles of learning.

McNamee and McLane (1984) originally tested the storytelling and dramatization activities with normal preschoolers three to six years of age. Their research demonstrated that an experimental group which dramatized the stories narrated by children made significantly more gains in narrative structure than did a control group that did not dramatize their stories. Systematic cueing was not initiated during the first few weeks of the storytelling but was introduced later and analyzed as a variable by which to judge narrative growth.

The current project used dramatization with all children. A more structured cueing strategy was developed and used in the teacher-child dyads during the fall remediation program. Our project, then, focused specifically on the effects of cueing, as well as the dramatization activity with all groups of LD children in supporting and remediating their reading and writing skills.

Procedures

At the beginning of both the summer and fall programs, the children were told that during any free time they had, they could tell a story if they so desired to either of the two researchers, one of whom sat in an open area near the small groups of children and teachers. The researchers kept a small tape recorder and paper with carbon for taking dictation and making two copies of each story. The child was seated so that he or she could see the writing of the story. Story dictation was limited to one page of the adult's writing. The adult served as both scribe and editor. During the summer session, intervention was minimal as the adult restricted her cueing and editing to helping the child get his ideas down on paper. By the fall session, cueing for overall logic and coherence was introduced, but cueing remained minimal for specific language structures (morphological endings, tense markers, etc.).

The dictation period was separated into three portions: planning, translating, and reviewing as discussed by Hayes and Flower (1980). During the planning stage, the researcher asked the child to tell her what the story would be about, including requests for some of the plot and an ending for the story. Cueing at this point was focused upon trying to help the child develop an entire story with clear beginning, middle and end. (Three levels of probes were used: (1) a simple query; (2) a more specific "Wh-" question; (3) a suggestion for an event). During the translation process, children dictated their ideas sentence by sentence. The adult repeated each phrase as she wrote and asked for clarification as needed. The three levels of probes were again used. A third portion of the story dictation time was designated for reviewing and editing. This did not necessarily come at the end of the dictation, but rather, was used at any point at which the child asked for or needed portions of the story reread and discussed. At the end of the dictation, the child selected children for roles in the play.

The important characteristic of the questioning strategy is that each time a child stopped or ran

into a difficulty, the adult demanded, in a sense, the most of the child. Only when children indicated that they were unable to keep going did the adult take successive steps to assume more responsibility for directing the conversation with questions and comments. The questioning strategy was in keeping with the basic hypothesis of the research regarding social origins of the development of thinking: That an adult's guidance facilitates the transition to a more independent role for the child by gradually reducing the demands of a task on the child in successive steps to the level of his need and to the level at which he can successfully participate in the task. At each intervention point, the adult relinquishes control to the child as the child gradually masters the necessary skills to carry out the activities more independently.

Dramatization took place during the last 15 minutes of each session in an open, comfortable area containing no furniture. Children sat on the floor, and a no-touching rule as actor or audience was in effect. The researcher read each story aloud and then called upon the children to whom parts had been assigned. The researcher served as director and stage manager, as well as narrator, commenting on the story and drawing out meanings. Expansion and improvisation took place often at this point. In addition, adult-authored stories were dramatized daily using the same procedures.

Results and Discussion

The children's stories from the summer and fall remediation programs were analyzed in three different ways to assess the children's growth through the storytelling and dramatization activities. First, the story *structure* was analyzed for the degree of complexity and the amount of coherence in the narrative. The Applebee levels (1978) were used to assign levels of conceptual complexity to each story. The levels are an ordinal ranking, ranging from one to six, devised by Applebee based on analysis of 300 children's stories. Second, the *dialogue* that took place between the teacher and child during story dictation was analyzed for the kind of help that children needed and could utilize at different points in the writing of their stories. The concepts of planning, translating, and reviewing/editing developed by Hayes and Flower (1980) to describe the writing process were used to analyze teacher-child comments made during the story dictation process.

Third, the *content* of stories was coded for evidence of social origin, that is, for indications that the story was a response to or in some way reflected a relationship to the ongoing classroom life. Together, these three analyses allowed us to see whether or not the children's stories improved over time; they allowed us to assess the children's understanding of the writing process as it was reflected in the kind of help they needed and could make use of during the dictation process, and the degree to which the stories grew out of and were related to ongoing group life.

1. **Analysis of story structure.** Data were analyzed by age across time. Although McNamee and McLane (1984) found clear indications of growth in normal children's stories across age levels even at a pre-intervention point. Such was not the case for the LD children. Table 1 shows that the older (10-11 year-old) children produced approximately twice as many Level 1 and 2 stories as did the 6 and 7 year olds and the 8 and 9 year olds.

Table 1
Coding of Summer Stories By Age

Applebee Level	Ages 6-7 (5 children)	Ages 8-9 (5 children)	Ages 10-11 (6 children)
1-2	36%	27%	67%
3-4	61%	65%	33%
5-6	3%	8%	0%
	36 stories	26 stories	36 stories

Three of the six older LD children especially influenced this outcome. The two age groups of children represent very different types of learning disabilities. Despite similar overall IQ scores (full scale WISC-R scores for the younger group = 93; for the older group = 90), the younger group had more diagnosed visual and visual-motor problems and fewer overall language problems than did the older group, whose language and reading scores on several measures were depressed (PPVT-R average scores for the younger group = 102; for the older group = 77). Thus, while the sample is small, the data do indicate that increased age does not ensure increased conceptual complexity of oral narratives in a LD population.

Table 2 illustrates the growth of story complexity over the period of the six-week summer school by age.

Table 2
Coding of Summer Stories By Age and Date

First Half of Summer Session			
Applebee Level	Ages 6-7	Ages 8-9	Ages 10-11
1-2	44%	25%	64%
3-4	56%	58%	36%
5-6	0%	17%	0%
59 Stories			
Last Half of Summer Session			
Applebee Level	Ages 6-7	Ages 8-9	Ages 10-11
1-2	25%	31%	58%
3-4	67%	69%	42%
5-6	8%	0%	0%
39 Stories			

Both the youngest and the oldest group show a drop in the number of Level 1 and 2 stories, and the youngest show an increase in Level 5 stories, while the 8-9 year olds show no improvement. We attribute these shifts to the dramatization, and the minimal kinds of support and structure that the dictation process gives a child.

Table 3 indicates that the combined effect of dramatization and cueing produced positive shifts across the 10-week remediation period for the 9, 9-11 year olds.

Table 3
Coding of Fall Stories
(9 Children Ages 9-11)

Applebee Level	October (12 Stories)	November (18 Stories)
1-2	25%	6%
3-4	42%	50%
5-6	33%	44%

Despite conditions that were less desirable in the fall (the once per week, one hour and fifteen minute sessions as opposed to the four times per week, 3-1/2 hours per day in summer school) several children made gains.

2. Analysis of teacher-child dialogue during story dictation. During the initial implementation of the storytelling and dramatization activities in the summer remediation program, the researchers assumed a non-directive role in the story dictation process. The researchers accepted virtually anything that the child wanted to include in his/her story and recorded the child's exact words. Intervention was limited to repeating back to the children their last idea to help remind them of what their story consisted of so far, asking them if there was anything more they wanted to add, and whether or not they had reached the end. The goal of this strategy was to give the children the opportunity to experience their ideas becoming written words. It also gave the researcher a period of time in which to watch the children's language and conceptual skills. This period also allowed the researchers to observe the effects of dramatization of stories on the children's story structures and content.

As the results of Table 2 demonstrate, this intervention strategy had limited value for the children. The dramatization of stories clearly motivated the children to participate in the activities; the children's enthusiasm was high for the activities but there were many problems with the children's stories that were perpetuating themselves in this open-ended non-intrusive dialogue format.

During the fall remediation period, the researchers devised a cueing strategy that was designed to intervene during the story dictation to help children develop their ideas with greater logic and coherence, and when possible to improve grammatical problems in the children's language. The overall intent of this intervention strategy was to maintain the child's level of interest and motivation in storytelling, and to keep the flow of ideas coming, but to try to help them achieve greater clarity and coherence. This meant that we would not stop and correct every grammatical error in every story, nor would we insist that every last detail of action be explained and made sensible. Some of the misunderstandings and errors were inevitably taken care of in the dramatization process, but it became clear that many of the problems could be gradually addressed in the one-on-one work with the child by structuring the story dictation process to focus on certain problems.

As mentioned, we devised a cueing strategy derived from the work of Hayes and Flower (1980). Given the assumptions about the social origins of thinking underlying this study, and the importance of adults' participation in activities with children, we hypothesized that LD children would not be able to carry out these monitoring processes entirely on their own, and that their first understanding of these processes would need to be built up over time in conversations with adults during the writing activities.

Tables 4 and 5 provide a description of the kind of help the researchers were able to give the children in terms of planning, translating and reviewing their narratives. Table 4 shows that about one-third of the story dictation process was spent in planning the story. Planning gave many children the opportunity to clarify their thinking separate from worrying about getting those ideas into the best written form all at one time.

Table 4
Coding of Adult-Child Dialogue
During Story Dictation
Fall Remediation Program

% of Teacher Comments and Questions	
Planning Stage - 30%	
Overall Organization of Story	21.0%
Conceptualizing Story Plot	8.6%
Language Structures	.4%
Translation Process - 60%	
Active Listening	46.0%
Conceptualization	10.0%
Language Structures	4.0%
Reviewing/Editing	9.0%
Planning for The End of Story	2.0%

In continuing our research, increased attention is being given to the planning stage to increase its effectiveness with the children. Many of the LD children seem to lack the strategic awareness to use the planning time to work out what they will say during translation. Such strategy deficits among LD children have been discussed by other researchers recently (see Torgesen, 1980).

About 60% of the dialogue focused on putting ideas into written form and about 10% of the dialogue focused on reviewing and editing the narratives. Table 4 shows that very little time was spent on grammar and language structure problems. This finding is in keeping with our overall philosophy of these activities that it is more important first to motivate the children to develop ideas and to experience success at communicating their ideas, and that later, attention can be focused on cleaning up the more surface level language problems (e.g., incorrect use of prepositions or incorrect verb forms).

Table 5 provides a description of the children's role in the story dictation process.

Table 5
Coding of Adult-Child Dialogue
During Story Dictation
Fall Remediation Program

Percentage of Children's Comments	
Planning Story	18.0%
Translation of Story Idea into Writing	65.0%
Reviewing/Editing of Story	.5%
Planning for The End of The Story	.4%
Comments *About* Planning, Translating and Reviewing Processes	6.0%
Comments About Writing (i.e., in regard to words, layout, process of writing)	2.0%
Comments About the Story He or She is Writing	6.0%
Comments Reflecting the Child's Concern for the Audience	.3%

The table shows that the children were quite fluent in participating in the planning and translation processes, but barely participated in the reviewing/editing processes. Their comments about the storytelling process and about writing itself were minimal but illustrate that some awareness is there. It is this awareness of the writing process and written language itself on which our future work with LD children will focus. Other researchers (Holdaway, 1979; Clay, 1979) have cited this awareness of the process of writing and of concepts related to language such as "sentence," "words," "letter" as critical for successful mastery of reading and writing. It has been our goal to show that these activities can provide this awareness and understanding of written language to children as they become more experienced at using written language to convey their own ideas to others in a context that is important and meaningful

to them. Our findings suggest that it will take time to build this understanding in ongoing daily remediation work with LD children.

3. Analysis of story content. Table 6 summarizes the themes and ideas developed in the children's stories during the summer and fall remediation programs.

Table 6
Story Content Analysis

Categories	No. of Stories	% of Stories
Summer Stories		
1. Home life, pets grandparents, family	29	30%
2. Fantasy based stories: stories of animals, stories derived from movies or a storybook	21	21%
3. Summer outings - vacations	14	14%
4. Fantasy characters: Smurfs, Strawberry Shortcake, Superheroes, Snow White, etc.	12	12%
5. Robbers and war stories	9	9%
6. Amusement parks - zoo	14	14%
7. Haunted spooky house stories	6	6%
	98	
Fall Stories		
1. Fantasy adventure stories (space, time machine, animal)	14	47%
2. Stories based on book, TV, movies (Charlie Brown, Strawberry Shortcake, Encyclopedia Joe)	13	43%
3. Other	9	10%
	30	

During the summer remediation program when the researchers played a non-directive role during story dictation, the children were free to draw ideas for their stories from any source. To our surprise and delight, the children very quickly began to borrow ideas from one another that they enjoyed acting out. This desire to borrow and copy from one another is an indication of the pleasure the children took in sharing ideas on the same topic (e.g., their fantasies of spooky haunted houses), or sharing experiences of a similar nature (e.g., their own family experience going to an amusement park or on a fishing trip). This tendency on the children's part is strong evidence of their contributing to the building of a "community of writers" in the summer school program.

The only shortcoming of this tendency to copy and borrow ideas was that the children provided each other with rather primitive models or structures for thinking about these ideas. The children did not necessarily borrow or benefit from more well developed story plots and structures for narratives. The following set of stories illustrates this process. These stories were written on the same morning and describe different children's experiences on a summer outing:

> We went to Great America. I went with my family and friends. We went on a lot of big rides like the Eagle, the Edge, the Tidal Wave and the Demon. We played some games. Then we ate dinner. Then we went on the Eagle three more times and the Edge one more time. Then we got a snack and we went on more rides. We stayed until 10 p.m. Then we went home. Before we went home, we went to Howie's house (Howard Johnson) and then we went home and went to bed.

> The End

> Girl, Age 11
> July 6th
> Applebee Level: 2

> We went for a boat ride. My brother John got the boat off the trailer. He had trouble starting it. If floated all the way to the other side. My dad had to walk through these big weeds to see what the problem was. My mom was mad because it was our first time on the boat and we couldn't go. My big brother was calm. He was just catching fish. My sister Susan, it was her birthday. My dad promised her "we will go on the boat." He had to pull the boat in with his big black boots on. My sister Susan didn't go on the boat because the battery broke down and she was real mad.

> Girl, Age 10-1/2
> July 6th
> Applebee Level: 3

> On the 4th of July, my grandma came at 4'oclock. And my grandma took us out to eat. We took her car and went to Garden Gate. I had a gyros. I split it with my sister. My mother had a gyros. My brother had perch. My father had pork. My grandma had lamb. After we ate, we paid the check. Then we went in the car and went to the carnival at Eagles. I went on some little rides with my sister. My brother and I went on the Tip-Top.

Then all of us got a snow cone and we played some games. Then we went home to shoot off some wine bottles and snakes. Then we went to bed.

The End

Girl, Age 11
July 6th
Applebee Level: 2

That these stories are not of a more sophisticated level of narrative structure in no way diminished the pleasure the children had in enacting these scenes from their own lives. The storytelling and dramatization activities provided rich and satisfying experiences for all children; there was full participation by the children in the dramatization activities every day, and there were constantly more children wanting to tell stories than we had time to write down. The desire to share was very contagious and the children clearly listened to one another and responded by telling a similar story.

We wanted to preserve this sense of dialogue through storytelling among the children, but also help them move toward highly developed narrative structures. This was attempted through the use of the more directive cueing strategy used with the second group of children. The more structured intervention brought with it a change in the kind of borrowing that the children did from one another. The stories for the most part fall into two categories -- fantasy adventure stories involving outer space and/or animals, and fantasy stories based on TV, book, or movie plots and characters. The children seemed to copy a genre and then develop themes in unique ways.

The results indicate that the developmental process involved in the remediation of oral and written language disorders through these activities is not completed in two or three sessions or even two or three weeks. The activities do not guarantee a quick and easy solution to remediating language disorders. Our results show that children do begin to achieve higher levels of narrative structures and begin to display more awareness of their own reading and writing slowly and gradually. This is particularly borne out when the stories of the four older children who participated in both the summer and fall remediation programs are examined. These findings are reported in Table 7.

Table 7

Average Level of Conceptual Development in Stories by the 4 Children Who Attended Both the Summer and Fall Remediation Programs

	Average Applebee Level	
	Summer	Fall
Boy, Age 8	3	4
Girl, Age 9	2	5
Boy, Age 9	2	3
Girl, Age 11	2	4

The table shows strong positive growth for all four children who initially had very weak skills in developing a story. Therefore, in the continuation of this research work, we plan to study the effects of these activities on children's oral and written language development over the course of a school year in the context of their daily school work.

Conclusion

The storytelling and dramatization activities are significant in the remediation of oral and written language disorders, because they represent one way that LD children can be involved in reading and writing processes as a whole, while mastering basic skills. Our findings show that through such basic activities as storytelling and dramatization, LD children become highly motivated to master the skills necessary for more independent and fluent reading and writing.

The "basic activities" approach to the remediation of oral and written language disorders is increasingly influencing educators' and psychologists' understanding of the remediation process. As the research of Cole and Griffin (1983) points out, a basic skills approach to the teaching of reading and writing will never be effective as an educational method in and of itself. The shortcoming of the basic skills approach is that it breaks the reading and writing processes down into the individual subskills necessary to carry out literacy activities. In educational programs for both normal and handicapped children, starting in the preschool years and right through elementary school, the teaching of reading and writing focuses predominantly on the mastering of skills such as phonics, decoding, letter recognition and letter formation. As Cole and Griffin describe, this

approach leads children to a major misunderstanding of what it means to read and write. "The misunderstanding is that reading means 'reading the individual words so that they sound right'" (1983, p. 71). What many LD children fail to realize is that reading is "a process of interpreting the world." This conception of reading and writing is missing from the theory of basic skills, and it is missing from most current systems of remedial instruction. Children are not taught how to decode while simultaneously comprehending.

As Cole and Griffin describe, we need to find a way to break the common sequence of instruction: decoding first with comprehension taught later. They describe the solution to this dilemma as a move away from "basic skills" toward "basic activities":

> . . . we should be trying to instantiate a basic *activity* when teaching reading and not get blinded by the basic *skills*. Skills are always part of activities and settings, but they only take on meaning in terms of how they are organized. So, instead of basic skills, a socio-historical approach (derived largely from Vygotsky's theory of development) talks about *basic activities* and instantiates those that are necessary and sufficient to carry out the whole process of reading in the general conditions for learning. (p. 73)

The important quality of the storytelling and dramatization activities is that they provide teachers and clinicians with a method for teaching comprehension skills along with the individual subskills necessary for reading and writing. Sequencing of ideas, cause and effect, and meaning-making and sharing are all intrinsic to the stories and plays. Thus children are working on conceptual problems inherent in reading and writing with comprehension while managing the mechanical problems such as spelling and punctuation. The remediation of language disorders in LD children is accomplished by immersing them in the reading and writing processes as a whole and in meaningful communication activity.

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The Intellectual Power of Bilingualism

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It is often heard that while the definition of *bilingual* is "a person who speaks two different languages," *monolingual* could be adequately defined as "an American." This half-joke, however, is only half-true. At the end of 1979, close to four million children in the U.S. were considered bilingual or in the process of learning a second language (Pifer, 1980), and the numbers are rapidly growing. The joke is definitely *not* true in the Southwest, where history could be written in at least four different languages as the encounters of Hispanic, Anglo and Native-American cultures.

The fact of multilingualism in the U.S. cannot be denied; the fact, nonetheless, remains controversial. No one seems to question the value and benefits of knowing two different languages in adulthood. On the other hand, childhood bilingualism is often criticized as a source of linguistic confusion that might result in serious intellectual deficits. Almost everyone agrees that young children are gifted language learners. The issue remains, however, as to whether educating our children bilingually enhances or detracts from their academic performance and intellectual development.

I argue in the present paper that growing up with two languages is, indeed, an asset to children's intellectual development. In what follows I will report linguistic and cognitive advantages observed in bilingual children and discuss the processes through which bilingualism might have a positive effect on children's intelligence. The paper will conclude with a plea to support bilingual educational efforts in the U.S. But first, the controversy.

Childhood Bilingualism: Asset or Handicap?

Both praise and attacks against childhood bilingualism are often biased by cultural, political and socioeconomic ideologies. Not surprisingly, those who value cultural pluralism will most likely notice the increased awareness and flexibility involved in the ability to function in more than one language. By the same token, those who perceive diversity as a direct threat to their identity and power will most frequently note the possible confusion and linguistic interference that a bilingual child might suffer. Nevertheless, beyond ideologies, prejudice and fear, we must recognize that our knowledge regarding the effects of a bilingual upbringing and education has been clouded mostly by a long history of contradictory findings in the empirical literature. Consider the following statements:

> There can be no doubt that the child reared in a bilingual environment is handicapped in his language growth. One can debate the issue as to whether speech facility in two languages is worth the consequent retardation in the common language of the realm. (Thompson, 1952, p. 367)

> The picture that emerges of the French-English bilingual in Montreal is that of a youngster whose wider experiences in two cultures have given him the advantages which a monolingual does not enjoy. Intellectually his experience with two language systems seems to have left him with a mental flexibility, a superiority in concept formation, and a more diversified set of mental abilities . . . In contrast, the monolingual appears to have a more unitary structure of intelligence which he must use for all types of intellectual tasks. (Peal & Lambert, 1962, p. 20)

On the one hand, linguists' case studies of bilingual children have praised the advantages of acquiring simultaneously two, or even three, languages in infancy. The eminent linguist Werner Leopold (1949b), commenting on the bilingual upbringing of his two daughters, noted that by the age of three both girls had an awareness of dealing with two different languages and that, from then on, both languages developed appropriately as two independent systems. Observing no signs of linguistic interference or retardation, Leopold regarded his daughters' bilingualism as a genuine asset to their mental development. Moreover, Leopold argued that because bilingual children had two different words for each referent, they learned early on to separate the sound of the word from its meaning and this, in turn, forced children to focus on essentials, on "content instead of form" (p. 188). Leopold's conclusion echoed the work of Vygotsky (1932/1962), who claimed that bilingualism accelerates the development of abstract thinking by freeing the child's thinking from the concreteness and "tyranny" of words.

On the other hand, in direct contradiction to linguists' case studies, psychological and educational studies done during the first half of this century often reported overwhelming evidence for a so-called "language handicap" in bilingual children (see Darcy 1953, 1963 for reviews). When compared to monolinguals, bilingual children appeared inferior on a wide range of linguistic abilities. Among other things, bilinguals were shown to have a poorer vocabulary (Barke & Perry-Williams, 1938; Grabo, 1931; Saer, 1923), deficient articulation (Carrow, 1957), lower standard on written composition and more grammatical errors (Harris, 1948; Saer, 1923). For a long time children's bilingualism was considered as some kind of social plague (Epstein, 1905), "a hardship devoid of apparent advantage" (Yoshioka, 1929, p. 476). The language handicap of bilinguals was interpreted as a linguistic confusion that affected children's intellectual development and academic performance up to the college years (Saer, 1923). Beliefs about the negative effects of early bilingualism were further confirmed when several studies showed that bilinguals performed lower than monolinguals on tests of nonverbal abilities, such as tests of dextrality (Saer, 1923) and mathematical competence (Carrow, 1957; Manuel, 1935).

How can we interpret such contradictory findings by linguists and psychologists? Interestingly enough, the answer is found by taking a closer look at the pitfalls of empirical methodology. Most early studies in this area suffered from a wide range of methodological problems; so much so that at present most investigators in the field regard the findings of early studies as totally unreliable (see Cummins, 1976; Díaz, 1983). Many studies, for example, failed to control for group differences in socioeconomics status between bilingual and monolingual samples. As early as 1930, McCarthy pointed out that bilingualism in the United States was seriously confounded with low socioeconomic status. She found that more than half of school children who were bilingual could be classified as belonging to families from the unskilled labor occupational group. Along the same lines, Fukuda (1925) alerted researchers that high-scoring subjects were mostly in the occupational and executive classes; he reported a significant high correlation between the Whittier (Socioeconomic) Scale and the Binet IQ measure for this population. Nonetheless, prior to the early 1960's, most studies investigating the effects of

bilingualism in children's intelligence did not account for bilingual-monolingual group differences in socioeconomic status. The negative findings, therefore, could be attributed to bilinguals' economic disadvantage rather than to their exposure to a second language.

A second major methodological flaw of early studies was that investigators consistently ignored children's degree of bilingualism or failed to measure children's relative competence and fluency in the two languages. An extreme example is a study done by Brunner (1929) where degree of bilingualism was determined by the foreigness of parents. Brunner divided his bilingual sample into three categories: (1) both parents born in this country, (2) one parent born here and the other abroad, and (3) both parents born abroad. The classification was simply (and naively) assumed to represent children's varied degrees of bilingual proficiency. In other studies, the sample's bilingualism was determined through family names or even place of residence (see Darcy, 1953 for a review). For obvious reasons, it is impossible to ascertain if the bilingual subjects of many studies were indeed bilingual or just monolingual of a minority language who barely spoke the language of the cognitive tests they were given.

In the early 1960's, the field took a different (and fortunate) turn. Aware of the potential advantages of bilingualism for children's cognitive development, Peal and Lambert (1962) attributed the negative findings of early studies to the failure of researchers to differentiate "pseudo-bilinguals" from truly bilingual children. "The pseudo-bilingual knows one language much better than the other, and does not use his second language in communication. The true bilingual masters both at an early age and has facility with both as means of communication" (p. 6). Peal and Lambert believed that while pseudo-bilingualism might be a serious problem that could result in intellectual retardation, genuine bilingualism may be a real asset to children's intellectual development. Because early studies had been lax in their definition of bilingualism and in the assessment of their sample's degree of bilingualism, negative findings could be attributed to a situation of pseudo-bilingualism.

To test their hypothesis, Peal and Lambert (1962) administered several measures of degree of bilingualism to 364 10-year-old children in

Canada. Three tests were used to determine whether children were "balanced" bilinguals, that is, had age-appropriate abilities in both French and English, or whether they were monolingual. The final sample was composed of 164 children; 75 monolinguals and 89 (genuine or balanced) bilinguals. Children in the sample were administered a modified version of the Lavoie-Laurendau (1960) Group Test of General Intelligence, the Raven's Coloured Progressive Matrices (a widely used nonverbal test of intelligence) and a French version of selected subtests of the Thurstone and Thurstone (1954) Primary Mental Abilities test.

Contrary to the findings of earlier psychological studies, the results of the Peal and Lambert study showed that bilingual children performed significantly better than monolinguals in most of the cognitive tests and subtests, even when group differences in sex, age, and socioeconomic status were appropriately controlled. Bilingual children performed significantly higher than monolinguals on tests of both verbal and nonverbal abilities; the superiority of bilingual children on the nonverbal tests was more clearly evident in those subtests that required mental manipulation and reorganization of visual symbols, rather than mere perceptual abilities. A factor analysis of test scores indicated that the bilinguals were superior to monolinguals in concept formation and in tasks that required a certain mental or symbolic flexibility. Overall, bilinguals were found to have a more diversified pattern of cognitive abilities than their monolingual peers.

The Cognitive Advantages of Bilingual Children

Perhaps the most striking aspect of Peal and Lambert's pioneer study is that their positive findings have been replicated time and time again in the last two decades of research. When compared to monolinguals, balanced bilingual children have shown advantages in measures of conceptual development (Liedtke & Nelson, 1968; Bain, 1974), creativity (Torrance, Wu, Gowan, & Aliotti, 1970), metalinguistic awareness (Cummins, 1978), semantic development (Ianco-Worrall, 1972) and analytical skills in matrix transformation tasks (Ben-Zeev, 1977). Other studies have shown that, within groups of bilingual children, their degree of bilingualism is positively related to several cognitive and academic skills. For example, children with higher levels of bilingual proficiency perform higher levels than their peers on measures of analogical reasoning and tests of spatial relations (Díaz, 1982). Let us now review a sample of these findings with greater detail.

As will be discussed below, the ability to objectify language (commonly referred to as metalinguistic awareness) is a crucial ingredient in the development of intelligence. Consistently, bilingual children have demonstrated a very special sensitivity to the nuances and objective properties of language. In an experimental study of English-Afrikaans bilingual preschoolers in South Africa, Ianco-Worrall (1972) gave children the Semantic-Phonetic Preferences test. The test consists of eight sets of three words each; a typical set begin the words *cap, can* and *hat*. Children were asked questions such as: Which word is more like cap, *can* or *hat?* Choosing the word can or the word hat respectively is an indication of the child's phonetic or semantic preferences in analyzing the similarity of words. The capacity to compare words on the basis of semantic dimensions is, developmentally, a more advanced ability than comparing words along a phonetic dimension. The results of the experiment showed not only that semantic preferences increased with age, but also that bilinguals outranked monolinguals in choosing words along semantic rather than phonetic dimensions. Bilingual children appeared two or three years ahead in semantic development.

A second study (Ben-Zeev, 1977) done with Hebrew-English bilingual children provides further evidence for bilingual's special awareness of linguistic features. When compared to monolinguals, the bilingual children demonstrated significant advantages on symbol substitution and verbal transformation tasks. The symbol substitution task involved children's ability to substitute words in a sentence according to the experimenter's instructions. In a typical instance, children were asked to substitute the word "I" with the word "spaghetti." Children were given correct scores when they were able to say sentences like "Spaghetti *am* cold" rather then "Spaghetti *is* cold" or a similar sentence that, although grammatically correct, violated the rules of the game. The verbal transformation task involved the detection of changes in a spoken stimulus that is repeated continuously by a tape loop. Both symbol substitution and verbal transformation tasks require enormous attention to the structure and details of

language data.

Ben-Zeev noted that, throughout the study, bilinguals approached the tasks in a truly analytic way, attentive to unusual cues from both the tasks and the experimenter. The author explained these improved abilities in terms of bilinguals' confrontation with their two languages. She argued that, in order to avoid linguistic interference, bilingual children must develop a special sensitivity to linguistic feedback from the environment. This well-developed analytic strategy toward linguistic structures is then transferred to other structures and patterns in different cognitive tasks. Ben-Zeev summarized her results as follows:

> Two strategies characterized the thinking patterns of the bilinguals in relation to verbal material: readiness to impute structure and readiness to reorganize. The patterns they seek are primarily linguistic, but this process also operates with visual patterns, as in their aptness at isolating the dimensions of a matrix. (p. 1017)

Several studies have explored the relationship between children's bilingualism and concept formation. In one study of French-English balanced bilingual children in Canada, Bain (1974) examined the effects of bilingualism on "discovery learning" tasks (see Gagne and Brown, 1961, for a detailed description of such tasks). The paradigm of Bain's study was to discover the rules that lead to solution of linear numerical problems such as:

A. 1, 3, 7, 15, ____
B. 1, 3, 6, 10, ____

Children were presented with two sets of items on two different days. On the second day of testing, children were told to "use the rules that you learned last day to help you solve the problems" (p. 123). The task was chosen because it involved the ability to discover a rule and then use the rule to deduce a certain outcome. In Piagetian terms, the task involved concept formation abilities such as classification and generalization of rules. Throughout the study, bilingual children showed superior performance on several concept formation abilities. For example, on the average, bilingual children were able to discover the additive rules eight minutes earlier than the monolingual children. Similar concept-formation advantages have been observed by Liedtke and Nelson (1968) in bilingual first-graders on concepts of linear

measurement.

Most theorists (e.g., Guilford, Spearman, Piaget) have stressed the central role of analogical reasoning in human cognition. It is appropriate, therefore, to conclude our brief review of the empirical literature by pointing out the positive relationship between childhood bilingualism and the capacity to reason by analogy. In a longitudinal study of 100 Spanish-English bilingual children, ages 5 to 7, the present author investigated the effects of learning a second language on analogical reasoning ability (Díaz, 1983). Children were asked to complete sentences such as,

A. The princess is beautiful, the monster is ____
B. Snow is ice, rain is ____

The results indicated that children with greater bilingual proficiency scored significantly higher on the analogy test. Furthermore, progress in the second language during the course of one academic year produced significant increases in children's analogical reasoning abilities as measured at the end of the one-year study.

In conclusion, the last two decades of educational and psychological research have indicated consistently that bilingualism promotes the development of children's cognitive abilities such as metalinguistic awareness, concept formation, and analogical reasoning. Moreover, studies of cause-effect relations using longitudinal data present bilingualism as the causal factor affecting children's intelligence. The question remains, however, as to *how* or *why* bilingualism has such effects on children's cognitive development.

Three Explanatory Hypotheses

Research on the relationship between bilingualism and cognitive development has focused mostly on *outcome* rather than *process* variables. That is, most studies of bilingual children have examined the outcome of children's performance on a wide range of cognitive and academic tasks, rather than examining children's performance in process. It is not clear, for example, whether bilingual children approach and solve cognitive tasks differently than their monolingual counterparts, or whether, for example, positive effects could be simply explained by a faster rate of cognitive development triggered by the bilingual experience.

The almost exclusive attention to balanced bilingual children has yielded information only about the final product of second language acquisition in childhood. There is virtually no information about the processes (or struggles) that a young child might go through while beginning to learn the second language, nor how the cognitive effort involved might affect or interact with the developing intellect. In the present section I propose three processes through which bilingualism might affect a child's cognitive development. Owing to a lack of empirical evidence, the processes will be presented as hypotheses pending empirical observation and verification.

1. Two Worlds of Experience. Language is certainly much more than an arbitrary set of symbols arranged according to grammatical rules. Above all, language is the most important vehicle of human communication and, as such, contains the history and living experiences of a given speech community and culture. At the very heart of bilingualism, there is a bicultural experience. By learning a second language, the bilingual child is exposed to the perceptions and awareness of a different culture.

Two languages differ not only in grammar and vocabulary. In Arsenian's (1937) words:

> The degree of difference between the two languages of a bilinguist is important not only from the point of view of the learning mechanism, but also of the thinking process . . . the difference between two languages usually denotes a difference in the culture and civilization of the two people using them, and hence denotes also a difference in the connotation of words which will influence the direction and the content of thought in the two languages. (p. 20)

The bilingual-bicultural child is able to experience the world from two different perspectives. This possibility touches a central process of cognitive development. According to the famous Swiss psychologist Jean Piaget, young children are by nature egocentric. By egocentric, Piaget meant that children's intelligence is seriously limited by their inability to take the perspective of another person. In Piagetian terms, intellectual development is marked by a "decentering," that is, a gradual movement away from one's own limited point of view towards an increasing awareness and coordination of different perspectives. Most likely, the bilingual-bicultural experience forces young children to decenter and move out of egocentric perspectives at a much earlier age than their monolingual peers.

2. Code-Switching. Code-switching refers to the observation that bilinguals can move from one language to the other with relative ease. As an explanatory hypothesis, code-switching was proposed first by Peal and Lambert (1962) when explaining their findings. These investigators believed that the possibility to change linguistic codes while performing cognitive tasks gave bilingual children an added flexibility that monolingual children did not enjoy. In Peal and Lambert's words:

> The second hypothesis is that bilinguals may have developed more flexibility in thinking . . . bilinguals typically acquire experience in switching from one language to another, possibly trying to solve a problem while thinking in one language and then, when blocked, switching to the other. This habit, if it were developed, could help them in their performance on tests requiring symbolic reorganization since they demand a readiness to drop one hypothesis or concept and try another. (p. 14)

More often than not, errors in cognitive and academic tasks are caused by children's perseveration on the wrong hypotheses. Bilingual code-switching might indeed facilitate the development of a more flexible "mental set" to approach cognitive tasks. Furthermore, when a bilingual child is frustrated or blocked when performing a task verbally, he has the possibility of switching to the second language, starting the problem once again with a fresh and different perspective.

Unfortunately, the literature contains only one datum of empirical observation to support such contention. In support of their explanatory hypothesis, Peal and Lambert (1962) cited the case of an 11 year old Gaelic-speaking boy (originally cited in Morrison, 1958) who had just taken a nonverbal test of intelligence. According to Morrison, when the boy was asked whether he had done his thinking in Gaelic or in English, the boy replied, "Please Sir, I tried it in the English first, then I tried it in the Gaelic to see would it be easier; but it wasn't so I went back to the English" (p. 280). The boy's candid and fascinating reply suggests that code-switching does take place while performing cognitive tasks, even while performing nonverbal tests of intelligence. The reply offers no information, unfortunately, as to whether such

language switch in fact facilitated the manipulation of visual-spatial symbols in the test.

3. Objectification. On many different studies, bilingual children have shown a particular advantage on measures of metalinguistic awareness. Once again, metalinguistic awareness refers to the ability to analyze objectively linguistic output; that is, "to look *at* language rather than *through* it to the intended meaning" (Cummins, 1978, p. 127). The third hypothesis claims that bilinguals' objectification of language is conducive to higher levels of abstract thinking and concept formation.

When learning to drive a car, discrete actions are learned and gradually coordinated until they become an organized pattern of automatic actions. In driving a car, therefore, learning proceeds from the conscious and objective (not to mention clumsy) to the unconscious and automatic. The development of intelligence, however, is *not* like learning to drive a car. In many instances, cognitive development is the product of objectifying concepts and abilities that are rather automatic and beyond deliberate control. Children's use of the word "because" is a case in point (see Vygotsky, 1962). Before entering school, children have been using the word "because" for years, and quite correctly in the context of their discourse. Even thought the word "because" is used automatically and rather well, experimental studies show that young children do not fully master the concept embodied by such word. For example, when asked why a child fell from a bicycle, a preschooler is likely to answer "because he broke his leg." Through formal instruction and conflict with adult thinking, children are gradually forced to become aware of their automatic concepts and mental operations. Only through this objectification process, children are able to bring their concepts to a higher level of abstraction, ensuring proper use of those concepts they already possess but do not fully master.

Bilingual children have two words for each referent and early on are forced to realize the conventional nature of language. Furthermore, as Vygotsky (1962) suggested, because bilinguals can express the same thought in different languages, a bilingual child would tend to "see his language as one particular system among many, to view its phenomena under more general categories, and this leads to an awareness of his linguistic operations" (1962, p. 110). The awareness of another language ultimately leads to an awareness of one's own language. For bilingual children, such objectification of otherwise automatic linguistic symbols ignites the motor of intellectual development and abstract thinking.

Finally, the objectification hypothesis recognizes that exposure to a second language leads not only to knowledge of a different language and culture, but also to self-knowledge. Such a claim echoes Goethe's famous dictum, "He who knows no foreign language does not truly know his own."

The Case for Bilingual Education

The cognitive advantages observed in bilingual children are usually the result of "additive" rather than "subtractive" bilingual situations. In other words, bilingualism promotes the development of cognitive abilities when the child's two languages are both developing and functioning in parallel (additive) rather than when mastery of a second language is achieved at the expense of competence in the first language (subtractive). The product of subtractive bilingual situations is a "semilingual," that is, a child who, for a good number of years, cannot function adequately in either language. The results of semilingualism are, indeed, cognitive and academic retardation.

Close to four million children in the U.S. are non-native speakers of English; the majority of these children are natives of the Southwest. These children are learning or acquiring English as their second language in school and other less formal settings. If educated bilingually, these children will benefit from the cognitive advantages of a truly bilingual-bicultural experience. On the other hand, if formal education does not take into account their native language nor promotes the development of both languages, these children will be at a high risk for semilingualism, placing them also at risk cognitively and educationally.

Bilingual education is, first of all, a right: The right of several million American children who are non-native speakers of English and who are, by law, entitled to an education. Bilingual education is legally endorsed, and rightly so, as the only viable alternative to teach these children the majority language and ensure at the same time their fair participation in the educational process. In conclusion, however, I would like to endorse bilingual education for a different reason. I would

like to present bilingual education not only as a right, but also as an excellent tool to enhance the academic and intellectual potential of our children, whether native speakers of Navajo, Spanish, English or Vietnamese.

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The Role of Memory in Learning to Become a Bartender: An Ethnographic/Experimental Approach

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The broad educational issues surrounding how we learn to become a tailor, a dairy worker, a bartender, an ethnographer, or a psychologist are intertwined with the question of how and to what end do we remember the information and skills reflected in such occupational classifications.

Memory has been a frequent topic of concern to experimental psychologists as indicated by its extensive representation in the literature. Less frequently, it has sparked descriptive accounts from, among others, anthropologist Gregory Bateson, sociologist Maurice Halbwachs, and psychologists Sir Fredrick Bartlett and A. R. Luria. Several of the existing experimental accounts as well as all of the descriptive accounts have characterized memory as a social as well as a cognitive process. However, there have been relatively few accounts of the role played by memory in becoming skilled at some socially predefined task.

As a student of cognitive psychology who has spent some time dabbling in the other branches of the social sciences, I went in search of a situation in which I might begin to address the role played by memory in becoming skilled at something. Taking a cue from the ongoing work of Sylvia Scribner and her research group (see Scribner, 1984) in which we are examining how persons become skilled at carrying out an occupational task, I began looking for a job. What follows is a description of a study which is still in progress.

After several false starts, including being caught in a management-union dispute at a supermarket chain, I came upon a school which trains bartenders. The school is certified by the New York State Board of Education and runs a successful placement service for its graduates. The standard two week course involves formal lecture-demonstration sessions by the instructor as well as extensive student practice mixing drinks behind a series of working bar stations. The school was chosen as a promising research site as, intuitively, heavy demands seem to be placed upon memory in learning to become a bartender. A graduate of the course is expected to be able to mix approximately 100 different drinks rapidly and accurately from memory. In addition, the to-be-remembered mixology information is of a finite and specifiable nature. This permits a more precise examination of the memory process than would be possible in other situations.

I initially spent several hours observing the school's classes. I found that not only did I not know much about mixing drinks (my previous role being on the receiving end of the mixologist's trade), I had very little idea of what was going on behind the bar stations. The students would talk of a 4 count of whiskey topped with S and S and how you never slide a drink mixed in a rock. It *was* immediately apparent, however, that becoming skilled at bartending involves a network of memory strategies rather than the unitary strategies often the object of inquiry in experimenter-controlled situations. I was also dismayed by the fact that I had no idea what a psychological question would look like if indeed one could be formulated from such a situation.

An ethnographic approach seemed to be called for to "make sense" out of the situation as an initial step towards formulating that evasive psychological question. It may be possible and often useful to separate a method from its theoretical underpinnings, whether that method be ethnographic or experimental. A method will nevertheless reflect a stronger theoretical relevance for certain kinds of data than others. This reflection, too, may have its uses as long as one remains aware that it is a reflection of a broader theoretical stance.

I decided to enroll myself as a student in the bartending school and use my introspections, observations, and non-structured interviews with students and instructors to describe what the memory demands of learning to become a bartender might be like. I also kept a weather-eye to generating a psychological question concerning the strategies involved in meeting those demands. Although I make no claim for having carried out an ethnography in the sense of using a combination of ethnographic theory and method, the ethnographic data did help me formulate a general

psychological question which was colored by the predominantly social nature of the ethnographic data.

Rather than getting ahead of myself, I would like to first provide a general description of the bartending classes. Each class consists of 20 to 25 students who often range from 19 to the late 60's in age. Their backgrounds are as varied as their ages: bank teller, university professor, off broadway actor, college student, cocktail waitress, waiter, the long and short term unemployed. Their reasons for taking the course varied around two themes: making money as a bartender and interacting with a social crowd.

Each class session consists of an hour of lecture with the instructor demonstrating how to mix various drinks. All instructors in the school have worked for a minimum of 5 years as professional bartenders. An instructor often conveys information which is explicit in the sense that it was available from the mixology guide which is given to each student at the start of the course. At other times the instructor will convey information which is implicit in the sense that it is not directly available from the mixology guide or from the arrangement of materials at each of the bar stations. For example, "you can remember that a dirty white mother has brandy and cream in it because the brandy gives it the dirty color and cream gives it the white color." After each lecture-demonstration session we were turned loose to practice in teams of three or four at each bar station for the remaining 3 hours of the class.

Having developed some sense of the memory demands, the categories of information constructed by the students, and their motivations for enrolling in the course, I carried out a secondary analysis of my field notes coupled with additional observations and questions put to the students and instructors. The analysis supported a characterization of bartending as a socially-constituted *practice* in Scribner and Cole's (1981) sense of a recurrent goal-directed sequence of activities consisting of knowledge, technology, and skills. It also suggested that a useful distinction can be made within the practice framework between individual goal-directed *actions* and the relatively durable collectively-held *activity*. The activity goes beyond the actions of any given individual. It encompasses motivations which energize the formation of individual goals which, in turn, serve as

an endpoint for the actions. Individual actions both reflect and collectively construct the activity.

The activity of bartending in the school includes as part of its material environment a bar station which provides a rich, socially-organized *potential* source external cues. These cues can assist the student in recalling mixology information. The activity is marked by motivations stemming from the economic reality of having to trade goods and skills for capital. In the case of the bartender's actions, this means having to mix drinks both rapidly and accurately with accuracy taking precedence over, but not excluding speed. In short, the activity is associated primarily with the motivation of earning a living. This sets up a series of goals beginning with accuracy and culminating with speed which define, in part, the individual student's actions in tapping potential cues. For example, a student cannot continue to use the mixology guide as a source of ingredient information throughout the course as it will make it difficult to achieve the goal of speed. Speed in mixing drinks is necessary not only to pass the final practical examination, but to support one's self in working at an actual bar.

Though much of the psychological literature on memory has considered an "external memory cue" to mean any material which facilitates the recall of information, a less asocial approach suggests that an external cue is also a symbol which has both a material presence and a socially-constructed meaning. The analysis of the enthnographic data, coupled with an ongoing review of the psychological literature points to a useful distinction that can be made between two systems of external memory cues used by the students at the bar stations.

The secondary system of cues consists of linguistic information in the form of the mixology guide, orally presented orders, and instruction comments made by students playing the role of customer on the other side of the bar. The primary system consists of such cues as glass shape and the color and amount of liquid in a glass.

The secondary or linguistic system of cues are materially arbitrary with respect to their referents. As a consequence, they have a tendency to cut across various activities. The original request for a series of drinks may result in the student referring to the mixology guide for the drink ingredients and/or utilizing the primary cues to

remember the drink names and ingredients.

Primary systems of cues bear a non-arbitrary material relationship with respect to their referents and are therefore relatively activity-specific. In bartending, the primary cues serve the purpose of recalling the names of the drinks ordered and/or the specific ingredient to be poured next into the glass. Primary cues only indirectly allow access to an entire drink recipe. For example, a cocktail glass placed on the bar rail may remind the student that one of the drinks in the order was a pink lady by limiting the number of possible drinks that can be poured into a glass of that shape. The name pink lady can then be used to remember that it is pink because it has it has grenadine in it. The lady refers to the fact that it contains gin (a favorite woman's liquor) and cream which sweetens the drink. The assumption being that women tend to prefer sweet drinks. Likewise, the half ounce of grenadine that may have been poured into the cocktail glass helps the student recall what the next ingredient might be in the drink by limiting the ingredients that could possibly follow the grenadine.

As students' knowledge of drink recipes increases with experience, they rely less and less upon secondary cues to recall drink information and increase their use of primary cues. Secondary cues allow for the achievement of the goal of accuracy in mixing drinks. They may also assist in the internalization of recipe information so that potential primary cues may be usefully tapped, allowing for greater speed in mixing. A choreography occurs between the potential cues of the activity and the students' actions which differentially construct and utilize some cues and not others in line with achieving the goals of accuracy, then speed. These goals, in turn, reflect the collective motivation of the participants in the activity.

Discussions with several professional bartenders suggest that eventually even the primary cues cease to be of use in recalling drink information. Drinks are mixed with both speed and accuracy without the experienced professional consciously attending to potential cues. Rather, attention is directed towards interacting with the customers so as to increase the probability of receiving a hefty tip.

The terms *activity, motivation, action,* and *goal* that I have used thus far have been developed by Soviet activity theorists in describing symbolic mediation as moving from the interpersonal social plane to the intrapersonal psychological plane of functioning. Motivations become goals and activities become actions with experience. Such a developmental trend is supported by the movement from secondary to primary cue use and a shift in goals from accuracy to speed with increasing experience. This is a necessary preliminary to the shifting of capital gain from a motivation to a goal as reflected in the eventual emphasis on interacting with the customer to increase tips. At the same time, the actions which have allowed the bartender to achieve both speed and accuracy in mixing drinks have been internalized to the point that they are operations which are run off in a nonconscious manner.

Although my secondary analysis of the field notes assisted me in formulating these tentative conclusions, as well as an interesting psychological question, I felt it necessary to confirm these conclusions on an experimental basis given the fact that the research endeavor itself had moved from the interpersonal plane to the intrapersonal plane. Cognitive phenomena require the making of an inference as to what is going on in the head of the individual. This is privileged information to the participant-observer and, perhaps, to the informant him or herself. The experimental method permits a degree of control over a situation that allows for the generation of such an inference.

The experimental study now in progress makes use of an already existing school practice to 1) verify the ethnographic findings that bartending students use primary as well as secondary external cues to recall drink information and 2) examine in more detail the nature of the progression from secondary to primary cue use with increasing experience. The practice consists of speed drills in which the students are given sets of drinks to mix while being timed by the instructor.

Data are presently being collected on ten novice and ten expert students distinguished on the basis of 1) their written and practical examination scores, 2) the time they have spent in the course, and 3) the instructor's rating of their ability. Several students who are new to the school and several of the instructors will also participate in the speed drills. In the experiment each student receives six speed drills, each consisting of a combination of four drinks. For the first three speed drills, students are asked to mix the drinks

using normal bar glasses. The second set of three drills requires them to mix the same drinks in a different order, but in this case generic black glasses are used to eliminate the primary cue of glass shape and to reduce the availability of the primary cues of ingredient color and amount. The secondary cues contained in the mixology guide are available for the students' use. A distraction task separates the two sets of speed drills so as to minimize the effect of practice. The distraction task consists of reading a passage from Spradley's study of cocktail waitresses. Each student is asked to count backwards from 30 by threes during the second and third drill of each set immediately after placing the glasses on the bar rail. This is done to assess whether verbal rehearsal of drink names is used to remember the order.

Speed drills are conducted in the school at the bar station and are videotaped. Students' tapes are being examined for mixing errors, time of mixing, retention of drink names, the use of secondary cues, and the simultaneous pouring of common ingredients into two or more glasses to increase speed. A post-speed drill interview is being conducted to tap the students' knowledge of drink name-drink ingredient associations and memory techniques.

A third research phase is planned in which a combination of ethnographic and experimental tracking techniques will be used to follow the progress of several students through the entire course of study. It will focus upon the relation of the students' changing internal representation of knowledge of drinks to the tapping of the domain's potential for secondary and primary external cues. At long last, this is the elusive psychological question that I had been searching for.

The question must be raised as to what a combination of ethnographic and experimental methods buys us in terms of understanding the learning process.

The ethnographic method disallows the assumption that I, as an experimentalist, can understand the social origins of psychological processes involved in learning something by naively constructing an experiment. On the other hand, the experimental method disallows that the ethnographer can make concise inferences as to what is going on in the intrapersonal psychological plane because the informants themselves may be unable to formulate such information in an accurate manner. Using an activity-based choreography of ethnographic and experimental methods makes it possible to begin understanding human learning as an intelligent playing-out-of a collectively constructed and individually internalized series of functions. This is in direct counterpoint to the assumption that an individual can be judged as acting intelligently or unintelligently in reference to a criteria which bears little relation to the given activity.

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New Results on the Reasoning of Unschooled Adults

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Introduction

In their article on the reasoning of unschooled and partially schooled adults Carraher and Carraher (1981) obtain results that we find quite alarming: They classify nearly 50% of the unschooled adults as being preoperational (levels I_A and I_B) using Piaget's quantification of probabilities task. The same adults could not be classified with the floating bodies task.

These results lead the authors to question the validity of Piagetian stages for describing adult thought. We are specially worried about the fact that when these adults *can* be classified they fall into a stage so low in the developmental sequence that one wonders how they will be able to learn anything at school and, still more seriously, how they function in everyday life. Preoperational subjects cannot seriate, classify nor make correspondences adequately. They cannot conserve physical quantities (like substance, weight or volume) or logical characteristics (number).

We believe that such results deserve to be studied in depth. Our first hypothesis was that maybe nothing as drastic was needed as questioning whether Piagetian stages describe adequately the reasoning of these adults. Maybe the tasks used were not the appropriate ones. In fact, quantification of probabilities and floating bodies were designed by the Genevan psychologists (Piaget and Inhelder, 1951; Inhelder and Piaget, 1958) to study the passage to the formal level. Although they were also applied to younger children at the preoperational stage, there are other tasks that are more widely used to study subjects who may be at the preoperational or at the concrete level. The present study was directed to such a purpose.

Methodology

We used three tasks to evaluate the level of the subjects: conservation of number, liquid, and weight. Our objective was to find out whether our subjects had *at least one of these conservations*, that is, we wanted to establish whether the subject had entered the formal level. However, at a preliminary phase of our work we did try out a wider variety of tasks (Inhelder and Piaget, 1958; Piaget, 1962; Piaget and Inhelder, 1951, 1972) (balance beam, conservation of mass, combination of colors and rotation of a scenery) in case our subjects found the others too easy or in case we could not establish good communication.

The interviews were administered individually, using the clinical method (Inhelder). In this method, the interviewer asked the subject a question which directs his work with a given material which he can manipulate. The interviewer continues to ask questions about the subject's thinking and actions so as to follow the subject's reasoning. This method, which is extremely flexible, has been used extensively by the Genevan School. A brief description of the experimental tasks follows.

In conservation of weight (Piaget, 1962), the subject is asked to make two clay balls of equal weight and then the interviewer deforms one of them to another shape (first into a sausage, then into a pancake and last into several small morsels) and asks whether they both weigh the same or whether one is heavier than the other. A weight balance is at hand which can be used at will. Before changing the ball to another shape, the subject is always asked to go back to the initial situation and to confirm if they remain equal.

A similar interview was carried out for conservation of liquids, where water is transferred from one of two identical glasses to others of different shape (thinner, thicker, etc.). The third task used was conservation of number, where the student is asked to make a row containing "the same amount of" candies to match the interviewer's and then the row is deformed (Piaget and Szeminska, 1941).

The subjects were interviewed with two or three tasks in one session which lasted 40 to 60 minutes. All interviews were taped and an independent observer registered the subject's actions. These interviews were later transcribed using the observer's notes as well.

We found that the conservation tasks adopted were suited to our subjects' level of operations and the atmosphere of the interview was good. In general, our adults liked to talk about their work, school, etc., but during the interview itself they spoke little and seemed to feel confused when asked to explain their answers and also when the interviewer repeated the question in a different form. On the whole, we concluded that the interviews should be action centered and with little talk.

There is also the problem of counter suggestions, arguments which contradict the subject's conclusions, which are usually made in clinical interviews to test the stability of the answers. Dasen (1982) proposes that counter suggestions should be avoided in cross cultural studies where they could be interpreted differently by subjects who might, for example, accept them through the authority of the interviewer. We tried counter suggestions with a few subjects at the end of the interview (so as not to affect the results), and found out subjects did indeed seem lost and some would not respond. We also found that in the conservation of weight task, checking the results on the weight balance left the subjects preoccupied when the results were negative, but did not lead them to more advanced reasoning. We were reminded of a comment by Gruber and Vonèche (1976) on the subject of "adult sensibility to their own performance" which can get to the limit of "operatory paralysis" (sic). We had expected, on the contrary, that this possibility of checking predictions might lead adults to "actualize" their reasoning, that is, put into work structures which were present, but not commonly used.

In general, within the modest range of this work, we confirmed the need, marked by Dasen, that clinical interviews should be adjusted to the characteristics of the population. However, as we have seen, no drastic changes were needed; once more we may be struck by the intercultural similarities in reasoning rather than by the differences.

Subjects

We interviewed 15 subjects, all women, who were starting a literacy program at a night school in Tijuca, Rio de Janeiro. They worked as maids, all but one in private homes, the other in a nursing home. Ages ranged from 16 to 52 years.

Results and Conclusions

We found that *all* 15 adults interviewed had at least one of the conservations, that is, they had all entered the level of concrete operations.

We have taken our null hypothesis to be Carraher and Carraher's results that 49% of unschooled adults are preoperational. Based on this result, we can reject the null hypothesis at $p < 0,001$ level using binomial statistics with $N = 15$.

These authors' results can be explained, as we hypothesized, because the tasks used were inadequate for the level of the subjects. Although our sample was composed entirely of women, it is quite comparable, in this first analysis, to Carraher and Carraher's sample which had only about 27% men. Our sample is also quite representative of low class, illiterate women who are, in their majority, either employed as maids at private homes, or stay at home doing housework, in which case their daily routine is practically the same.

We have also shown that the classical Piagetian tasks of conservation, administered in clinical interviews with only slight modifications, seem to adapt themselves quite well to our sample.

Finally, we find it would be worthwhile to continue this research, but now looking for the upper limit in operational development of these adults. That is to say, we want to study which percentage of these adults have completed the concrete state (II B), or in Piaget's terms, reached equilibrium, and which percentage has entered into the formal stage. It may then prove interesting for this purpose to design special tasks (Dasen, Ngini, and Lavallée, 1979).

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POSTDOCTORAL FELLOWSHIPS
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The Center for Human Information Processing at the University of California, San Diego, anticipates that it will have postdoctoral fellowships available in cognitive psychology funded by the National Institute of Mental Health. Applicants should be in possession of a recent doctoral degree, and those with degrees in fields other than cognitive psychology are encouraged to apply. Appointments can be arranged to start any time after July 1, 1985.

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*When people speak
of the development of abstract thought
out of the science of the concrete,
the shift from signs to concepts,
the abandonment of intuition,
imagination, perception,
these are little more than crude ways of
assessing in general terms
the kinds of processes involved in the
cumulative growth of systematic knowledge,
a growth
that involves elaborate learning procedures
(in addition to imaginative leaps)
and which is critically dependent upon
the presence of the book.*

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ANNOTATED BIBLIOGRAPHIES

Salomon, Gavriel. (1984, October). Computers in education: Setting a research agenda. *Educational Technology, XXIV*(10), 7-11.

In any discussion concerning what should be accomplished through the application of computers in education, industry, or society one will find conflicting points of view. The necessity for research is unquestionable. But, what should our research priorities be? In the article reviewed here, Salomon, a prominent researcher in the field of technology and education (1981), presents five classes of questions that comprise his research agenda.

His first agenda item, which he labels as "most urgent," deals with the cumulative, long term effects of computers. With so many elements of society changing at any given time, trying to pin down the observable effects of a new technology will prove to be a very difficult but essential task. Salomon points out that despite difficulties, given "the expected ubiquity of computers in our lives, it becomes imperative to study the diversity of the accumulative effects of computer usages" (p. 7).

Salomon uses the history of research on the social and cognitive effects of television to illustrate why long term studies must begin now. He points out that research options become limited as a technology is integrated into society and becomes universally available (Hornik, 1981). For example, once a technology is in the mainstream, control groups necessary for comparative studies become difficult to establish. This is what happened with research on the effects of television. This research began after television had become a mainstream item. This pattern is likely to repeat itself with computers unless research starts in earnest now. One difference is that whereas development of television was given over to the entertainment world, the computer is being developed by the academic community, as it has been the brain child of a number of academic disciplines. Because the computer is the result of a number of different disciplines, the combined brain power of

these people can be brought to bear for the purpose of planning the future research of computers and their effects on society.

The second item of Salomon's research agenda complements the first: users' influence on computers' effects. In this part of the paper Salomon is concerned with the cumulative effects of computers on cognition, emotion, and behavior. However, there is also some concern about the "technological determinism and the unidirectionality of effects implied by such a study" (p. 8).

Research of a new technology or device tends to focus on the question of what it does to us, to our children, and to others. These studies tend to disregard the possibility that the recipients of such effects partly determine these effects. It is important to realize that people are not passively affected by technology, people affect the way technology can affect them.

The third aspect of Salomon's research agenda deals with unique computer capabilities. These pertain to identification, conceptualization, of those aspects of the computer that distinguish it from other technology and carry the most promise for education. Salomon learned an important lesson in his television research: No medium and technology, in and of itself, has much impact on learning or cognition. However, it is "always something specific in them which may afford new activities, experiences, or arouses cognitions hitherto unaffected" (p. 9).

The fourth item on this agenda is the transfer of learning from computer to non-computer contexts. Much of the argument for computer activities in schools is based on the unexamined assumption that whatever is being learned on computers transfers to non-computer situations. However, there is a problem with this assumption. Research indicates that few skills transfer easily across situations within a domain, let alone across domains (Scribner and Cole, 1981). Recent stu-

dies on the cognitive effects of programming fared no better (Pea and Kurland, in press).

What then are the conditions necessary for transfer from computer activities to take place? There appears to be two roads: 1) the "high road" of attentive, active generalization of whatever knowlege has been acquired; 2) "a low but long road of automatic transfer of something that has been overlearned and practiced in a variety of situations" (p. 10).

Does learning-by-doing promise more transfer than learning-by-being told? Is all this investment in teaching to program worth all the effort? The importance placed on assumed transfer warrants a concerted, direct attack on the topic in the field of computer afforded activities.

The last item of the research agenda examines the role of computers in education, and the role of schools in the computer age. For all the implied promise and potential of computers for education, there is a long, rocky road from concept to realization. To make full use of the computers' potential there is going to have to be a tremendous change in the schools, one which Salomon assures us will be difficult to obtain.

Schools proceed with caution, as they face difficult questions of education, philosophy and practice. For example, what should the school's role be when students sit at their micros at home, electronically linked to each other and to data sources, and pursue their own learning paths?

Someone must also address the issue of who is to be responsible for examining these far reaching questions. Without the research community taking the lead, new developments will be driven by computer enthusiasts, or slowed down by the skeptics.

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*Consequently,
in the actual method of creating images,
a work of art must
reproduce that process whereby,
in life itself, new images are built
up in the human consciousness and feelings. (p. 18).*

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